

## Context

- Data is an important tool to support decision-making in public health, particularly for identifying and tracking emerging challenges and monitoring and evaluating approaches implemented to address them.(1)
- The COVID-19 pandemic created an unprecedented need for higher quality and timely public health data to support decision-making around COVID-19, but the pandemic also demonstrated the consequences of low levels of data literacy that can lead to confusion among the public and distrust of science and institutions.(2)
- Given this, there is a need to enhance data literacy for data non-specialists to increase their data literacy and ability to use data in decision-making.(3)
- Data literacy:
  - refers to the ability to derive meaning from data from “a specific skill set and knowledge base, which empowers individuals to transform data into information and into actionable knowledge by enabling them to access, interpret, critically assess, manage, and ethically use data.”(4)
  - focuses on the competencies involved in working with data including the knowledge and skills to read, analyze, interpret, visualize, and communicate data as well as understand the use of data in decision-making. (4-6)
- Enhancing data literacy is complex and involves many skills/competencies and therefore is unlikely to be achieved with a one-size-fits-all approach, and instead with initiatives that are contextualized to be accessible and engaging for a wide range of diverse learners.
- This rapid evidence profile was requested to identify and profile evidence about approaches that could be used as part of a strategy to enhance public-health-focused data literacy and bolster trust in data collection, sharing, and use by public institutions.

## Question

- What is known about strategies that government agencies can use to enhance public health data literacy for the general population and for equity-deserving groups?

## Rapid Evidence Profile

### Strategies for enhancing public-health-focused data literacy

**27 March 2024**

[MHF product code: REP 70]

### Box 1: Evidence and other types of information

#### + Global evidence drawn upon



Evidence syntheses selected based on relevance, quality, and recency of search

#### + Forms of domestic evidence used (🇨🇦 = Canadian)



Qualitative  
insights

#### - No other types of information used

#### \* Additional notable features

Prepared in three business days using an 'all hands on deck' approach

## High-level summary of key findings

- We identified 10 evidence documents (three evidence syntheses and seven single studies) that described strategies to enhance public health data literacy for the general population and for some equity-deserving groups (e.g., racialized populations, Indigenous peoples, newcomers to Canada, those living with physical disabilities, and members of the LGBTQ2IA+ community).
- Most of the identified strategies focused on supporting specific skills for data literacy (i.e., analyzing or interpreting data, visualizing data, and/or communicating data) such as: developing easy-to-understand descriptions, visuals, and narratives on the presented data; providing training opportunities to practice data interpretation (e.g., charts, tables plots, infographics) through workshops and asynchronous learning modules; and engaging communities in the development of data visualizations and tools to ensure improved comprehension.
- Apart from describing academic institutions in some of the evidence documents (e.g., teachers leading workshops for public health students or interns), it was unclear who else delivered the data literacy strategies identified.
- We found some suggestions on ways to tailor data literacy strategies for diverse populations, such as people living with disabilities and racialized populations, such as engaging the communities in developing data literacy strategies.
- Overall, data literacy appears to be an emerging topic, where the current literature focuses on how to support skills for data literacy; emphasizes the importance of engaging communities and audiences in the development of strategies, data visualizations, and tools; and suggests cultivating broader trust in science to improve the use of data in everyday decision-making among all populations.
- Better understanding of end users can guide implementation for effective targeted actions and initiatives.

## Framework to organize what we looked for

- Focus on strategies that can be used to enhance data literacy
  - Improve knowledge about data and what it can help inform
  - Change attitudes about using data
  - Support specific skills for data literacy
    - Identify reliable sources for data
    - Analyzing or interpreting data
    - Visualizing data
    - Communicating data
  - Other
- How strategies to enhance data literacy can be delivered
  - Distribution of educational materials (e.g., using social media)
  - Virtual training (e.g., webinars)
  - In-person training
  - Community-driven approaches (e.g., building capacity to enhance data literacy in communities, leveraging community leaders as champions)
- Who delivers the strategies
  - Government agencies
  - Public health regions or units
  - Academic institutions
  - Evidence producers (e.g., data analytics teams)
  - Teams or organizations that provide evidence support
  - Stakeholder organizations (e.g., professional associations)

- Community agencies
- Trusted individuals (e.g., clinicians, system leaders)
- Population focus of strategies
  - Indigenous Peoples
  - Older adults
  - Newcomers
  - Students
  - Racialized populations
  - People living with disabilities
  - People of low socio-economic status
  - People with experiencing homelessness
  - People who face language barriers
- Outcomes
  - Increased knowledge
  - Improved attitudes about using data
  - Increased use of data
  - Other

## What we found

We identified 10 evidence documents (three evidence syntheses and seven single studies) that described strategies to enhance public health data literacy for the general population and for some equity-deserving groups.(7-16) Due to the limited number of evidence documents included, we also incorporated findings from medium and low-relevance documents. Additional details of each evidence document are provided in Appendices 2 and 3. Documents excluded at the last stage of reviewing are listed in Appendix 4.

Overall, data literacy appears to be an emerging topic, where the current literature focuses on how to support skills for data literacy; emphasizes the importance of engaging communities and audiences in the development of strategies, data visualizations, and tools; and suggests cultivating broader trust in science to improve the use of data in everyday decision-making among populations.

Most of the identified strategies focused on supporting specific skills for data literacy such as analyzing or interpreting data, visualizing data, and/or communicating data. The identified strategies included:

- using easy-to-understand descriptions and clear visuals to support individuals when interpreting charts and tables on dashboards for public health risks (8; 15)
- contextualizing and presenting data as a narrative or story with key takeaways for optimal user engagement and action (15)
- providing educational opportunities (e.g., workshops, asynchronous learning modules) to practice data interpretation (e.g., charts, tables plots, infographics) and gain an understanding of the ethics and potential benefits and harmful uses of data (7; 10-12)
- cultivating broader deliberative engagement with the general population and equity-deserving populations, such as involving them in the development of data visualizations and tools, evaluating the community's ability to

## Box 2: Approach and supporting materials

We identified evidence addressing the question by searching Health Systems Evidence, Health Evidence and PubMed. All searches were conducted on 11 March 2024. The search strategies used are included in Appendix 1. In contrast to synthesis methods that provide an in-depth understanding of the evidence, this profile focuses on providing an overview and key insights from relevant documents.

We searched for full evidence syntheses (or synthesis-derived products such as overviews of evidence syntheses) and single studies.

We appraised the methodological quality of evidence syntheses that were deemed to be highly relevant using AMSTAR. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. The AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to evidence syntheses pertaining to delivery, financial or governance arrangements within health systems or to broader social systems.

A separate appendix document includes:

- 1) methodological details (Appendix 1)
- 2) details about each identified synthesis (Appendix 2)
- 3) details about each identified single study (Appendix 3)
- 4) documents that were excluded in the final stages of review (Appendix 4).

understand data, and working with communities to develop strategies that enhance trust in science and the available scientific information.(9; 13; 15)

We found some evidence documents that reported on the use of training (virtual and in-person) and community-driven approaches to enhance data literacy in communities. Two evidence documents described that a workshop series on data literacy and community engagement led to improvements in data literacy skill-building.(9; 12)

Apart from describing academic institutions in some of the evidence documents (e.g., teachers leading workshops for public health students or interns), it was unclear who else delivered the data literacy strategies identified. Further, most of the data strategies focused on the general population, but we found some suggestions on ways to tailor data literacy strategies for diverse populations. For people living with disabilities, the authors of a low-quality evidence synthesis suggested prioritizing ability-based design where people living with disabilities are involved in the conceptualization, usability testing, and evaluation of data literacy strategies. They also suggested providing multiple modalities (e.g., visual, auditory, tactile approaches) to optimize data interpretation and understanding.(14) Similarly in a multi-method study, people living with physical disabilities in Canada reported that they preferred if data sharing was simplified and to acknowledge that some individuals may not have the right technology or the technological capacity needed to access health data digitally.(16) Another low-quality evidence synthesis described that some community initiatives developed educational materials in different languages to alleviate barriers for diverse populations.(9)

## **Next steps**

Additional next steps should focus on efforts to fill gaps in the literature, which include:

- evidence syntheses or single studies that clearly describe the focus of the data literacy strategy, how it is being delivered, who delivers it, the population focus of strategies, and any reported outcomes in order to support the implementation of effective targeted actions and initiatives
- evidence syntheses or single studies that focus on understanding the attitudes and beliefs of both general populations and equity-deserving populations on the use of data and what decisions it can inform
- evidence syntheses or single studies that build on what is currently known about health literacy, digital health literacy, and/or person-centred or ability-based approaches and whether these existing topics could support the development of strategies for data literacy.

## References

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